AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

1.   (Currently Amended) A ~~computer-readable medium~~ machine-readable storage device
encoded with a computer program comprising instructions that, when executed, operate to cause
a computer to perform operations comprising:

establishing a plurality of checkpoints in a computer program, the computer program
having a program structure, each checkpoint in the plurality of checkpoints including an
assertion statement that tests whether a specified condition is true, and a breakpoint that halts
execution of the computer program, the assertion statement including an argument to activate
logging with programmer-controlled granularity, the argument being used to determine whether
to update a log entry when the assertion statement fails;

assigning each checkpoint in the plurality of checkpoints to a checkpoint group of a
plurality of checkpoint groups ~~without regard to the program structure of the computer program~~,
the assignment of each checkpoint to a ~~a~~ the checkpoint group being specified in ~~the~~ a statement
defining the respective checkpoint, and each checkpoint group including a respective
identification;

associating each checkpoint group with one of a plurality of activation variants that
indicates a behavior based on a result of the assertion statement, wherein checkpoint groups
associated with an activation variant behave in accordance with the activation variant;

selectively activating at least one checkpoint group based on the respective identification;

indicating the activation variant of the plurality of activation variants, in accordance with
the at least one checkpoint group is to behave; and

executing the computer program based on selectively activating the at least one
checkpoint group and indicating the activation variant, wherein only the at least one checkpoint
group of the computer program is executed, and a remainder of the plurality of checkpoint
groups, if any, is not executed

~~executing a non-activatable checkpoints; and~~

~~selectively executing at least one checkpoint of the plurality of checkpoints based on an~~
~~activation status of the checkpoint group.~~

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2. - 3. (Cancelled)

4. (Currently Amended) The ~~computer-readable medium~~ <u>machine-readable storage device</u> of claim 1, wherein the operations further comprise:

receiving a control input activating a first checkpoint group; and

activating the checkpoints in the first checkpoint group.

5. (Currently Amended) The ~~computer-readable medium~~ <u>machine-readable storage device</u> of claim 4, wherein the operations further comprise:

receiving a control input that specifies a mode in which checkpoints that are assertions terminate on assertion failure;

receiving a control input that specifies a mode in which checkpoints that are assertions log status on assertion failure; and

receiving a control input that specifies a mode of activating checkpoints in which assertions break in a debugger on assertion failure.

6. (Currently Amended) The ~~computer-readable medium~~ <u>machine-readable storage device</u> of claim 4, wherein the operations further comprise:

receiving a control input specifying that activating is to be performed only for a particular user of multiple users using the computer program, the activating not affecting the use of the computer program by other users.

7. (Currently Amended) The ~~computer-readable medium~~ <u>machine-readable storage device</u> of claim 4, wherein the operations further comprise:

receiving a control input specifying that activating is to be performed only for a particular server of multiple servers on which the computer program is running.

8. - 10. (Cancelled)

11.   (Currently Amended) The ~~computer-readable medium~~ machine-readable storage device
of claim 1, further comprising instructions to establish a development environment for
developing the computer program in which the checkpoint groups are development objects.

12.   (Currently Amended) The ~~computer-readable medium~~ machine-readable storage device
of claim 1, wherein the checkpoints and the computer program are in a compiled form.

13.   (Currently Amended) An apparatus, comprising:

means for establishing a plurality of checkpoints in a computer program, the computer
program having a program structure, each checkpoint in the plurality of checkpoints including an
assertion statement that tests whether a specified condition is true, and a breakpoint that halts
execution of the computer program, the assertion statement including an argument to activate
logging with programmer-controlled granularity, the argument being used to determine whether
to update a log entry when the assertion statement fails;

means for assigning each checkpoint in the plurality of checkpoints to a checkpoint group
of a plurality of checkpoint groups ~~without regard to the program structure of the computer
program~~, the assignment of each checkpoint to ~~a~~ the checkpoint group being specified in ~~the~~ a
statement defining the respective checkpoint, and each checkpoint group including a respective
identification;

means for associating each checkpoint group with one of a plurality of activation variants
that indicates a behavior based on a result of the assertion statement, wherein checkpoint groups
associated with an activation variant behave in accordance with the activation variant;

means for selectively activating at least one checkpoint group based on the respective
identification;

means for indicating the activation variant of the plurality of activation variants, in
accordance with the at least one checkpoint group is to behave; and

means for executing the computer program based on selectively activating the at least one
checkpoint group and indicating the activation variant, wherein only the at least one checkpoint
group of the computer program is executed, and a remainder of the plurality of checkpoint
groups, if any, is not executed

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~~means for executing a non-activatable checkpoint, and for selectively executing at least one checkpoint of the plurality of checkpoints based on an activation status of the checkpoint group.~~

14. - 15. (Cancelled)

16.   (Previously Presented) The apparatus of claim 13, further comprising:
        means for associating an activation variant with a compilation unit.

17.   (Currently Amended) A method, comprising:
        receiving a computer program having a plurality of checkpoints, each checkpoint being assigned to at least one of a plurality of checkpoint groups, each checkpoint and each checkpoint group being identified by a group identifier, each checkpoint in the plurality of checkpoints including an assertion statement that tests whether a specified condition is true, and a breakpoint that halts execution of the computer program, the assertion statement including an argument to activate logging with programmer-controlled granularity, the argument being used to determine whether to update a log entry when the assertion statement fails, the assignment of each checkpoint to a checkpoint group being specified in ~~the~~ a statement defining the respective checkpoint, the statement including the group identifier identifying the checkpoint group, and each checkpoint group including a respective identification;

        associating each checkpoint group with one of a plurality of activation variants that indicates a behavior based on a result of the assertion statement, wherein checkpoint groups associated with an activation variant behave in accordance with the activation variant;

        selectively activating at least one checkpoint group based on the respective identification;
        indicating the activation variant of the plurality of activation variants, in accordance with the at least one checkpoint group is to behave; and

        executing the computer program based on selectively activating the at least one checkpoint group and indicating the activation variant, wherein only the at least one checkpoint group of the computer program is executed, and a remainder of the plurality of checkpoint groups, if any, is not executed

~~receiving user input to invoke checkpoints as a group according to their group identifiers;~~

~~executing a non-activatable checkpoint; and~~

~~selectively executing at least one checkpoint of the plurality of checkpoints based on an~~
~~activation status of the checkpoint group.~~

18.   (Previously Presented) The method of claim 17, further comprising:

receiving a user input specifying a mode of invocation of checkpoints; and

invoking checkpoints according to the specified mode.

19.   (Previously Presented) The method of claim 17, further comprising:

receiving a further user input specifying a scope of invocation of checkpoints, the scope
specifying that checkpoints are to be invoked only for a particular user of multiple users using
the computer program; and

invoking checkpoints according to the specified scope.

20.   (Previously Presented) The method of claim 17, further comprising:

receiving a further user input specifying a scope of invocation of checkpoints, the scope
specifying that checkpoints are to be invoked only for a particular server of multiple servers on
which the computer program is running; and

invoking checkpoints according to the specified scope.

21. - 24. (Cancelled)

25.   (Currently Amended) A method for adding checkpoints to a computer program having
source code, the method comprising:

adding to the computer program a plurality of checkpoints each assigned to a checkpoint
group of a plurality of checkpoint groups by a respective group name for the checkpoint, each
checkpoint in the plurality of checkpoints including an assertion statement that tests whether a
specified condition is true, and a breakpoint that halts execution of the computer program, the
assertion statement including an argument to activate logging with programmer-controlled

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granularity, the argument being used to determine whether to update a log entry when the assertion statement fails, the assignment of each checkpoint to a checkpoint group being specified in ~~the~~ a statement defining the respective checkpoint, and each checkpoint group including a respective identification;

associating each checkpoint group with one of a plurality of activation variants that indicates a behavior based on a result of the assertion statement, wherein checkpoint groups associated with an activation variant behave in accordance with the activation variant; ~~and~~

selectively activating at least one checkpoint group based on the respective identification;

indicating the activation variant of the plurality of activation variants, in accordance with the at least one checkpoint group is to behave; and

executing the computer program based on selectively activating the at least one checkpoint group and indicating the activation variant, wherein only the at least one checkpoint group of the computer program is executed, and a remainder of the plurality of checkpoint groups, if any, is not executed

~~adding to the computer program at least one checkpoint as a non-activatable checkpoint, which non-activatable checkpoint is executed regardless of an activation status of the checkpoint group.~~

26. (Previously Presented) The method of claim 25, further comprising:

adding the plurality of checkpoints to the source code of the computer program, the respective group name for each checkpoint being included in the source code for the checkpoint; and

transporting the checkpoint groups as development objects with the computer program from a development environment to a production environment, the development objects being objects created and managed by the development environment.

27. (Currently Amended) The ~~computer-readable medium~~ machine-readable storage device of claim 1 ~~claim 10~~, wherein:

the argument to activate logging indicates that a log entry is made for each distinct value of a named field.

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28. (Currently Amended) The ~~computer-readable medium~~ machine-readable storage device of claim 1, wherein the checkpoint groups and the activation variants are established in a maintenance module, and affect operation of a separate debugger module.

29. (Previously Presented) The apparatus of claim 13, wherein the means for establishing, the means for assigning, and the means for associating are provided in a maintenance module, and wherein the checkpoint groups and the activation variants affect operation of a separate debugger module.

30. (Previously Presented) The method of 17, wherein the checkpoint groups and the activation variants are established in a maintenance module, and affect operation of a separate debugger module.

31. (Previously Presented) The method of 25, wherein the checkpoint groups and the activation variants are established in a maintenance module, and affect operation of a separate debugger module.

32. (New) The machine-readable storage device of claim 1, wherein the operations further comprise:
    executing a non-activatable checkpoints; and
    selectively executing at least one checkpoint of the plurality of checkpoints based on an activation status of the checkpoint group.

33. (New) The apparatus of claim 13, further comprising means for executing a non-activatable checkpoint, and for selectively executing at least one checkpoint of the plurality of checkpoints based on an activation status of the checkpoint group.

34. (New) The method of claim 17, further comprising:
    receiving user input to invoke checkpoints as a group according to their group identifiers;

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executing a non-activatable checkpoint; and

selectively executing at least one checkpoint of the plurality of checkpoints based on an activation status of the checkpoint group.

35. (New) The method of claim 25, further comprising adding to the computer program at least one checkpoint as a non-activatable checkpoint, which non-activatable checkpoint is executed regardless of an activation status of the checkpoint group.